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VIRGINIA BUSINESS REPORT

BUREAU OF BUSINESS RESEARCH, SCHOOL OF BUSINESS ADMINISTRATION
THE COLLEGE OF WILLIAM AND MARY, WILLIAMSBURG, VIRGINIA

Report No. 344 June, 1989

Business in Virginia May, 1989

Seven of the individual indicators reported each month in Table II show the year-to-year percentage changes for the immediately preceding month—in this case, for May. These seven indicators are our "early" series, supplemented by data lagged one additional month for nonagricultural payroll employment and Department of Taxation figures on taxable retail sales.

For the month of May, the seven "early" indicators reveal weakening consumer demand and lower levels of planned construction, on the average for the state and in the majority of the seventeen urban areas we track.

Consumer demand for new cars continues to fall below last year's levels. This May, new car registrations statewide were 5.4% lower than last May with fourteen out of the seventeen areas experiencing declines (we use whole weeks for comparability year-to-year, so our May result does not include Memorial Day car sales).

The general merchandise stores in our retail sample also encountered sagging sales, down 4.0 percent per store in May. The decreases were concentrated in Northern Virginia, Petersburg, and Hampton Roads; but the retail gains in other areas generally were very modest—only in five of the seventeen areas did the stores achieve May-to-May growth of five percent or more.

Weak consumer demand was complemented by a 14.9 percent drop in the dollar value of building permits for our sample of urban areas. Furthermore, eleven of the seventeen areas reported declines. This overall fall, shared by most areas, is our first sign for 1989 that planned construction finally is slowing and moving more in line with the demand for new structures.

Two more of our "early" indicators also fell in May: bank debits, down 3.5 percent, and newspaper advertising, off 1.0 percent. Thus five of the seven "early" series fell below last year's levels, pointing to a broader softening in Virginia's economic pace than was evident in March and April. The only two pluses were in utility consumption: electricity use rose 5.5 percent and water consumption, 6.0 percent. Those utility increases imply both population and production are well ahead of this time last year in spite of the growing evidence that overall demand in Virginia is shifting to a lower growth path.

The lagged information on April taxable sales (last column, Table II) shows the April-to-April advance was 5.2 percent, not far above the inflation rate. Thus, as suspected last month, the total real volume of retail trade in Virginia currently is creeping, not leaping, forward.

The strongest economic performance remains in jobs—the April rise was 4.1 percent, bringing the gain for the year to 4.3 percent, above the 1988 annual rate of 3.7 percent. The job growth rate will slow down in the coming months but still remain positive. Consumer demand may be weakening in Virginia. However, higher business demand throughout the United States and accelerating foreign demand for a wide range of Virginia products and services are two potent forces not directly covered by our indicators that are creating new opportunities and jobs in Virginia. RLP

Chart I

Nine Selected Business & Economic Indicators Percentage Change

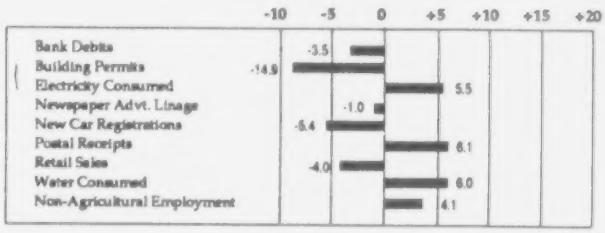
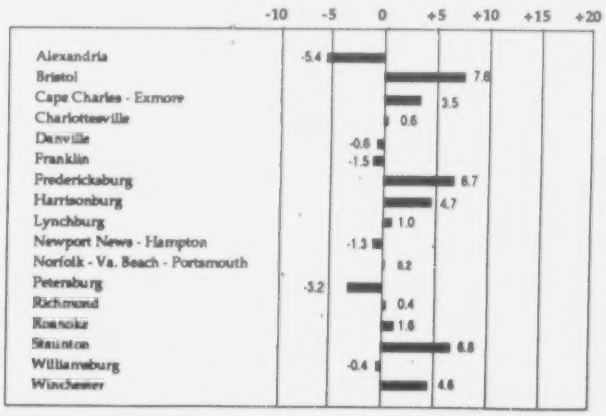


Chart II

City Indices



SELECTED BUSINESS AND ECONOMIC INDICATORS FOR 17 CITIES

TABLE I May, 1989

Monthly Index Number Comparisons of Current Month to Same Month in Base Period (1977) - Base Period = 100

CITY	CITY INDEX*	BANK DEBITS	BUILDING PERMITS	ELECTRICITY CONSUMED	NEWS-PAPER ADV. LINAGE	NEW CAR REGIS-TRATIONS	APRIL NON-AGRI-CULTURAL EMPLOYMENT #	WATER CONSUMED	SAMPLE RETAIL SALES †	POSTAL RECEIPTS
The State		310.4	207.3	138.8	102.9	188.5	150.0	98.9	142.8	363.6
Alexandria	148.6	500.2	434.7	153.3	N.A.	170.4	208.8	102.0	124.4	N.A.
Bristol	118.1	N.A.	65.5	102.2	78.2	115.9	121.2	96.6	142.8	386.6
Cape Charles - Exmore	180.5	N.A.	419.6	129.9	N.A.	106.5	N.A.	N.A.	93.5	337.0
Charlottesville	199.2	148.7	327.9	130.0	N.A.	142.1	115.4	140.7	249.0	391.5
Danville	139.2	N.A.	135.5	124.4	122.7	105.6	105.2	90.5	N.A.	241.4
Franklin	138.5	N.A.	155.7	114.0	136.8	96.7	N.A.	90.2	126.9	252.6
Fredericksburg	415.9	278.5	238.5	N.A.	186.5	240.2	N.A.	97.2	298.7	1997.5
Harrisonburg	201.2	412.7	2130.3	N.A.	177.0	107.5	N.A.	183.1	182.3	340.8
Lynchburg	268.0	115.6	134.8	120.4	N.A.	112.5	101.1	118.1	195.3	N.A.
Newport News - Hampton	126.4	N.A.	212.9	117.3	101.2	100.0	143.7	130.2	128.5	N.A.
Norfolk - Va. Beach - Portsmouth	185.6	114.5	245.8	145.1		136.9		88.7	280.7	N.A.
Petersburg	146.4	129.9	182.1	N.A.	N.A.	64.2	138.9	121.7	185.0	320.0
Richmond	174.1	399.5	302.4	153.0	122.1	129.7		114.1	177.1	376.3
Roanoke	179.6	435.1	61.3	107.6	156.7	97.8	125.8	115.7	197.2	405.4
Staunton	160.1	209.5	556.5	N.A.	101.5	98.0	N.A.	N.A.	174.8	282.3
Williamsburg	187.7	201.0	301.8	159.4	N.A.	175.4	N.A.	111.3	154.6	370.3
Winchester	187.9	N.A.	215.9	130.0	192.0	177.5	N.A.	N.A.	N.A.	N.A.

TABLE II May, 1989

Percentage Change from Same Month Last Year.

CITY	CITY INDEX*	BANK DEBITS	BUILDING PERMITS	ELECTRICITY CONSUMED	NEWS-PAPER ADV. LINAGE	NEW CAR REGIS-TRATIONS	APRIL NON-AGRI-CULTURAL EMPLOYMENT #	WATER CONSUMED	SAMPLE RETAIL SALES †	APRIL TOTAL RETAIL SALES ‡
The State		-3.5	-14.9	5.5	-1.0	-5.4	4.1	6.0	-4.0	5.2
Alexandria	-5.4	8.6	-64.4	6.1	N.A.	1.2	6.2	12.2	-24.9	6.1
Bristol	7.6	N.A.	-7.6	4.9	6.3	10.6	3.4	-8.2	14.8	6.7
Cape Charles - Exmore	3.5	N.A.	-3.4	10.0	N.A.	-7.7	N.A.	-0.5	3.3	13.1
Charlottesville	0.6	-21.2	-80.6	5.9	N.A.	-11.8	0.6	10.8	1.6	-5.4
Danville	-0.6	N.A.	-7.6	10.0	-13.1	-10.7	3.4	3.6	N.A.	3.0
Franklin	-1.5	N.A.	-26.9	2.0	-7.3	-35.9	N.A.	-4.1	5.7	16.3
Fredericksburg	6.7	33.4	4.6	N.A.	3.9	-0.7	N.A.	23.2	5.3	4.5
Harrisonburg	4.7	54.3	208.5	N.A.	0.2	-6.5	N.A.	5.4	11.9	-1.9
Lynchburg	1.0	-15.1	-29.8	3.4	N.A.	-4.6	2.2	6.2	1.6	-3.8
Newport News - Hampton	-1.3	N.A.	-21.9	9.0	2.7	-9.1	0.8	18.6	-15.1	15.0
Norfolk - Va. Beach - Portsmouth	0.2	8.4	11.2	4.2		-6.2		0.5	-2.6	7.7
Petersburg	-3.2	31.6	-50.5	N.A.	N.A.	-38.7	3.5	13.7	-3.9	10.7
Richmond	0.4	-7.2	2.8	4.9	-7.0	-16.8		2.5	4.0	4.3
Roanoke	1.6	23.6	18.4	5.3	0.8	-2.6	1.5	4.2	1.5	1.1
Staunton	6.8	43.3	935.5	N.A.	1.6	-3.6	N.A.	N.A.	12.0	6.7
Williamsburg	-0.4	24.6	-19.4	-1.0	N.A.	-8.4	N.A.	5.9	0.8	-2.0
Winchester	4.6	N.A.	-56.0	2.4	N.A.	4.5	N.A.	N.A.	N.A.	6.9

TABLE III May, 1989

Percentage Change January - May from Same Period Last Year.

CITY	CITY INDEX*	BANK DEBITS	BUILDING PERMITS	ELECTRICITY CONSUMED	NEWS-PAPER ADV. LINAGE	NEW CAR REGIS-TRATIONS	JAN. - APRIL NON-AGRI-CULTURAL EMPLOYMENT #	WATER CONSUMED	SAMPLE RETAIL SALES †	JAN. - APRIL TOTAL RETAIL SALES ‡
The State		-7.7	-6.5	2.8	-1.6	-10.4	4.3	1.4	0.4	6.4
Alexandria	-1.9	8.0	18.1	4.0	N.A.	-7.5	6.2	4.9	-9.6	5.7
Bristol	1.3	N.A.	6.0	-0.8	4.0	-6.8	3.7	-12.1	4.4	10.2
Cape Charles - Exmore	-2.5	N.A.	32.9	4.0	N.A.	-22.6	N.A.	N.A.	-1.2	7.3
Charlottesville	-1.7	-22.3	-54.6	3.3	N.A.	-38.8	0.1	8.7	3.2	3.9
Danville	-1.3	N.A.	-30.8	4.4	-10.2	-6.0	3.4	-0.3	N.A.	0.7
Franklin	-2.5	N.A.	-52.3	1.9	-1.7	-10.1	N.A.	-1.7	-3.6	2.7
Fredericksburg	7.1	23.4	24.3	N.A.	1.7	-4.0	N.A.	17.6	9.3	6.8
Harrisonburg	3.9	38.9	139.6	N.A.	-3.5	-13.7	N.A.	4.1	10.5	9.2
Lynchburg	0.0	6.5	53.5	2.2	N.A.	-15.6	1.8	6.5	0.8	2.6
Newport News - Hampton	2.9	N.A.	-28.0	2.4	N.A.	-13.4	1.1	26.0	-1.2	10.4
Norfolk - Va. Beach - Portsmouth	-0.9	-14.5	-4.8	-0.7		-4.3		N.A.	-2.0	3.8
Petersburg	-2.8	-37.1	-43.6	N.A.	N.A.	-33.2	3.2	3.2	-0.5	8.6
Richmond	-1.5	-8.4	13.1	3.5	-1.6	-19.6		0.9	0.4	-1.1
Roanoke	0.6	8.0	-14.0	3.4	-3.0	-2.9	1.7	0.5	0.8	3.4
Staunton	8.4	26.4	136.7	N.A.	0.9	-15.8	N.A.	N.A.	13.7	12.2
Williamsburg	5.3	17.6	-40.1	19.9	N.A.	-2.9	N.A.	3.4	3.9	5.1
Winchester	2.8	N.A.	44.2	3.8	N.A.	-6.0	N.A.	N.A.	N.A.	10.5

* Computation of City Index is based upon a weighted arithmetic mean of all business and economic components listed except Building Permits and Bank Debits, which are excluded because of their highly erratic nature.
\# Virginia Employment Commission data which lags behind current reports.
† Preliminary data based on a survey sample.
‡ Total sales based on sales tax information which lags behind current reports.
⊃ Only total MSA data are available for these areas.

N.A. – Not Available
0.0. – No Change

Advanced Electronics Manufacturing in Virginia: Some Findings

Electronic circuitry to control how a product functions is becoming more and more pervasive. It moved from aerospace and computers to consumer electronics and then to appliances such as ovens and dishwashers; to automobiles, replacing carburetors and many gauges; and strongly into toys, for both children and adults.

In manufacturing these advanced electronic components, a key step is attaching chips containing circuitry to printed wiring boards on which these chips are interconnected. How should the chips be mounted to the printed wiring boards so that the chips are "plugged in" efficiently? The most common method is "through-hole" mounting. Holes are drilled in the board, and wires attached to the chip are passed through these holes and soldered in place. There are some obvious drawbacks in use of space (always at a premium in electronic circuitry)— holes cannot be but so close, space must be allowed for affixing the wires, and mounting the chip uses both sides of the printed boards.

There is another way to mount the chip— in effect, "gluing" it on the surface of the printed board with a solder paste. That mounting method uses only one side of the board, freeing up the other side; and with no holes, the connector pins can be much closer together. This method is Surface Mount Technology (SMT), and while it is not as easy to do as it sounds, it can cut board size up to 75%, reduce weight, and increase the operating speed and efficiency of the completed circuit board.

Its advantages are making SMT a rapidly growing production technology in the electronics industry. Today, approximately 13% of all components used in the domestic market are SMT. This compares to a 17% usage rate in Europe and over 60% in Japan. Industrial experts estimate that in 1992 more than 40% of the projected 89 billion electronic components used in the United States to manufacture nearly $400 billion worth of electronic equipment will be surface mount components.

Such new manufacturing technology for the high-tech growing electronics industry is an exciting concept, and any state government certainly would say "we encourage it". But, how can a state help? Two ways are providing employee training and supporting research and testing of production techniques and products.

However before a state government jumps into a task as specific as SMT training and research, it needs some very basic information. For one thing, how many companies are there in Virginia that might use SMT, and where are they? Secondly, what do they feel is needed for them to use SMT effectively?

To answer such questions a Virginia government partnership undertook a statewide study of the state's advanced electronics industry. The partners were: The Center for Public-Private Initiatives; Virginia Department of Economic Development; the Virginia Community College System (all 23 colleges); Center for Innovative Technology through its Economic and Technology Development Directors with the community college system; and our Bureau of Business Research, as the agency to design the market research instruments and analyze the results. Some excerpts from the report summary follow.

Out of an initial list of approximately 600 electronics related firms, 211 were identified as Virginia's current electronic circuit board industry. These are firms that use circuit boards in their products, produce them, or do research and design work on boards. These 211 firms comprise a substantially larger Virginia industry than initially expected.

This means that a large, sophisticated circuit board industry currently exists in the Commonwealth—and it is one that already appears to have a substantial percent of firms committed to using SMT.

These firms have been sorted geographically into four distinct regions. These regions and their appropriate community colleges are:

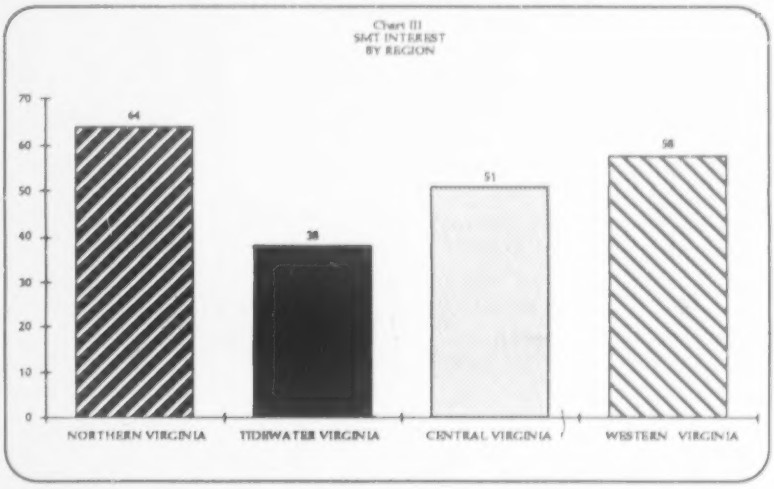
Northern Virginia:	Germanna, Lord Fairfax, and Northern Virginia
Tidewater Virginia:	Eastern Shore, Paul D. Camp, Rappahannock, Thomas Nelson, and Tidewater
Central Virginia:	Blue Ridge, John Tyler, J. Sargeant Reynolds, Piedmont, Southside
Western Virginia:	Central, Dabney S. Lancaster, Danville, Mountain Empire, New River, Patrick Henry, Southwest, Virginia Highlands, Virginia Western, Wytheville

The Western region was chosen to include Danville through Lynchburg and Roanoke, which accounts for placing Central Community College in the region labeled Western Virginia.

One of the more interesting findings of this initial research is that SMT interest and awareness appear to be relatively evenly distributed across Virginia. As seen in Chart III, of the 211 companies indicating SMT interest, 64 (30.3%) were in Northern Virginia and 58 (27.5%) in Western Virginia. Central Virginia was third with 51 (24.2%), and Tidewater was fourth with 38 firms (18%).

Responses also show that 118 firms design their own circuit boards, 108 assemble them, 72 use surface mount circuit boards in their products, 42 perform SMT rework, and 38 currently use Surface Mount Technology in the production of their circuit boards. This reinforces other findings that indicate Virginia's existing advanced electronics industry is far more sophisticated than it was originally felt to be.

Of the 173 companies responding to a question of circuit board use, 72 firms or 41.6% of the total use surface mount circuit boards in their products, showing a significant adoption of SMT technology has already occurred within Virginia's electronics industry. Of the firms using SMT circuit boards, the largest number are in Central Virginia (22 firms, 30.5%), closely followed by Western Virginia (21 firms, 29.2%). Northern Virginia (17 firms, 23.6%) and Tidewater (12 firms, 16.7%) ranked third and fourth.



Since one of the key reasons for initiating this study was to identify interest in establishing research and/or training facilities, it was encouraging to note that 98 firms expressed some measure of interest in establishing an in-state training facility. Sixty of these firms (61.2%) indicated they were "interested" while 38 (38.8%) were "very interested".

Positive interest in establishing a research laboratory was expressed by 107 firms with 57 (53.3%) responding "interested" and 50 (46.7%) responding as "very interested". A plurality of "interested" or "very interested" firms appears to be in Northern Virginia (35 firms), followed by Western Virginia with 31 positive responses, Tidewater with 24, and Central Virginia with 17.

While this phase of the research is exploratory, these levels of awareness and interest combined with other survey findings suggest the need to continue pursuing a course of action which will bring together industry, business, and higher education to promote an advanced technology support system in the Commonwealth. RLP

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